

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims

1-16. (Canceled)

17. (New) A method for the production of mechanical energy in combination with the extraction of cooling or heat in connection with a combustion engine, which is fed with fuel and air, whereby the combustion engine's inlet air is combined with water vapor before combustion, said method comprising:

compressing inlet air to the combustion engine; and
passing pressurized flue gases from the combustion engine for treatment in at least one pressurized flue gas condenser, said heat flow from said condenser being utilized by a heat consumer or a sorption cycle, and said flue gas after condensing, and before expansion in a turbine, being reheated in order to avoid ice formation during said expansion.

18. (New) The method according to claim 17, wherein water vapor or condensate from condenser stages of the condenser is added to the inlet air.

19. (New) The method according to claim 17, wherein said flue gas condensing is carried out at a flue gas pressure that is at least 2.5 bar absolute pressure.

20. (New) The method according to claim 19, wherein the flue gas pressure is over 3 bar absolute pressure.

21. (New) The method according to claim 17, wherein the combustion engine's inlet air is subjected to diabatic humidification at close to atmospheric pressure, and heat is transferred from a second stage of the flue gas condenser, downstream of a first flue gas condenser stage.

22. (New) The method according to claim 17, wherein the combustion engine's inlet air is subjected to humidification at raised pressure, through the direct contact between water and compressed air.

23. (New) The method according to claim 17, wherein said combustion is carried out with a substantially stoichiometric mixture of fuel/air/water.

24. (New) The method according to claim 17, wherein the flue gas, after said flue gas condensing has occurred, is reheated by

transferring heat from a warmer part of the flue gas or from the compressed inlet air.

25. (New) The method according to claim 17, wherein the reheated flue gas is further heated with uncooled flue gas from the combustion engine, whereby the temperature difference between the streams and is under 200°C and preferably under 100°C.

26. (New) The method according to claim 17, wherein heat flows from the generator, oil coolant, or other waste heat flows from the engine is used to humidify the inlet air to the combustion engine.

27. (New) A device to produce mechanical energy and heat or cooling in connection with a combustion engine which has the means to humidify the combustion engine's inlet air, said device comprising:

- a compressing device for compressing inlet air to the combustion engine;

- means for passing pressurized flue gases from the combustion engine for treatment in at least one pressurized flue gas condenser;

- a device to recover heat at elevated pressures from said flue gases by means of flue gas condensing, said heat being

transferred to a heating net or to a sorption cycle in chosen proportions; and

a device to reheat cooled flue gas after said flue gas condensing such that final expansion in a turbine can be carried out without ice formation.

28. (New) A device according to claim 27, including means for adding water vapor or condensate to the inlet air by using condensate from condenser stages of the condenser.

29. (New) A device according to claim 27, including means to maintain the flue gases at above-atmospheric pressures in the exit pipe from the combustion engine until a position downstream of the condensers.

30. (New) A device according to claim 27, including means to add fuel, air and water vapor to the combustion engine to obtain substantially stoichiometric combustion.

31. (New) A device according to claim 27, including means to transfer the heat for humidifying the intake air, from the power generator, oil cooling or radiation and convection losses.

32. (New) A device according to claim 31, wherein the means to transfer the heat for humidifying the intake air transfers the heat at the humidification means.

33. (New) A device according to claim 27, wherein the combustion engine consists of a pressurized fuel cell.

34. (New) A device according to claim 27, where it is configured to use extracted heat to drive sorption processes for carbon dioxide removal.

35. (New) A device according to claim 34, wherein the absorption unit is placed downstream of a final condenser.